Kootenai National Forest Peatlands: Description and Effects of Forest Management

Prepared for:
The Kootenai National Forest

By:
W. Marc Jones

Montana Natural Heritage Program
Natural Resource Information System
Montana State Library

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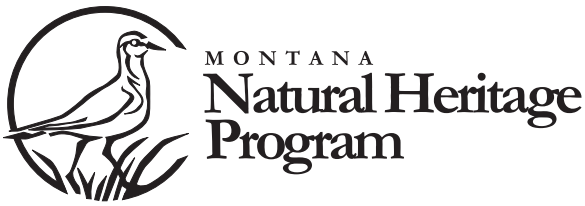

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ABSTRACT

I examined the relationship between upland land use and peatland vegetation in the Kootenai National Forest. Specifically, I evaluated the effects of human disturbances (timber harvesting and road building) in different sized buffers around peatlands on peatland plant diversity. The buffer sizes evaluated were 50, 100, 150, and 200-m from peatland boundaries. I compared the effects of land use on vegetation both directly and indirectly by examining the relationship between buffer integrity and soil nutrient levels. Potential shifts in species composition were assessed by examining interactions between the abundance of a competitively dominant sedge, *Carex utriculata*, and both soil nutrient concentrations and plant diversity. The average width of intact buffers was found to be negatively associated with NH_4 concentrations at distances up to 100 m and positively associated with vascular plant diversity at distances of up to 50 m. The abundance of *Carex utriculata* was positively associated with the increased concentration of NH_4 and negatively associated with vascular plant diversity. Rare species were associated with high vascular plant diversity. These results suggest that existing buffers are inadequate in ameliorating increased nutrient inputs associated with human land uses. This may have adverse consequences for peatland-associated rare plants.

TABLE OF CONTENTS